

I claim:

1. A therapeutic laser system, comprising:
a housing sized and shaped to be comfortably held
in the hand of an operator, and having a front and a back,
5 and
a substantially planar diode array mounted in a
recessed manner on said back of said housing, and having a
center and four sets of laser diodes each having a first,
second and third laser diode, said sets being arranged in
10 equally spaced, equilateral triangles with said first laser
diodes of each said set being spaced a first distance from
said center of said diode array, and said second and third
laser diodes being spaced a greater second distance from
said center of said diode array,
15 whereby said diode array projects a resultant beam
that is directed at selected tissue to impart energy into
said tissue.

2. The laser system as set forth in Claim 1
wherein said first, second and third laser diodes of each
said set are oriented at 120 degrees to each other.

3. The laser system as set forth in Claim 1
wherein each said set has a center and said first, second
and third laser diodes of each set are oriented along lines
through said center of said set.

4. The laser system as set forth in Claim 1
wherein said first, second and third laser diodes of each
said set each have a different wavelength.

5. The laser system as set forth in Claim 4 wherein each said first laser diode has a wavelength of 650nm, each said second laser diode has a wavelength of 780nm, and each said third laser diode has a wavelength of 808nm.

6. The laser system as set forth in Claim 1 wherein said diode array includes two each first, second, third and fourth light emitting diodes arranged in a cross formation between said sets of laser diodes and mirrored across said center.

7. The laser system as set forth in Claim 6 wherein said first light emitting diodes have a wavelength of 660nm, said second light emitting diodes have a wavelength of 880nm, said third light emitting diodes have a wavelength of 470nm, and said fourth light emitting diodes have a wavelength of 940nm.

8. The laser system as set forth in Claim 1 including an electric power source mounted in said housing, and

programmable control electronics mounted in said housing, connected to and powered by said power source, and connected to and providing electric power to each of said first, second and third laser diodes to individually activate and control the intensity of each of said first, second and third laser diodes.

9. The laser system as set forth in Claim 8. wherein said control electronics includes a plurality of preprogrammed modes for activating said first, second and third laser diodes.

10. The laser system as set forth in Claim 9 including means for operator input connected to said control electronics, for operator control of said control electronics.

11. The laser system as set forth in Claim 10 wherein said means for operator input has an on/off button mounted on said front of said housing for turning said control electronics on and off, and a mode button mounted on
5 said front of said housing for selecting one of said modes.

12. The laser system as set forth in Claim 11 wherein said means for operator input includes a jack mounted on said housing for connection to a calibration device for calibrating said diode array through said control
5 electronics and downloading additional said modes to said control electronics.

13. The laser system as set forth in Claim 9 including means for operator output mounted on said front of said housing and connected to said control electronics, for advising an operator of the status of said control
5 electronics and said diode array.

14. The laser system as set forth in Claim 1 wherein said means for operator output includes a mode indicator, a battery indicator and a time remaining indicator.

15. A therapeutic laser system, comprising:
a housing sized and shaped to be comfortably held in the hand of an operator, and having a front and a back,

a substantially planar diode array mounted in a recessed manner on said back of said housing, and having a center, four sets of laser diodes each having a first, second and third laser diode, and two each first, second, third and fourth light emitting diodes, said sets being arranged in equally spaced, equilateral triangles with said first laser diodes of each said set being spaced a first distance from said center of said diode array, and said second and third laser diodes being spaced a greater second distance from said center of said diode array, each said set having a center with said first, second and third laser diodes of each set being oriented at 120 degrees to each other along lines through said center of said set, said first, second, third and fourth light emitting diodes being arranged in a cross formation between said sets of laser diodes and mirrored across said center, said first light emitting diodes having a wavelength of 660nm, said second light emitting diodes having a wavelength of 880nm, said third light emitting diodes having a wavelength of 470nm, said fourth light emitting diodes having a wavelength of 940nm, said first light emitting diodes having a wavelength of 660nm, said second light emitting diodes having a wavelength of 880nm, said third light emitting diodes having a wavelength of 470nm, and said fourth light emitting diodes having a wavelength of 940nm,

an electric power source mounted in said housing, programmable control electronics mounted in said housing, connected to and powered by said power source, and connected to and providing electric power to each of said first, second and third laser diodes and said first, second, third and fourth light emitting diodes to individually activate and control the intensity of each of said first,

second and third laser diodes and said first, second, third and fourth light emitting diodes, said control electronics including a plurality of preprogrammed modes for activating said first, second and third laser diodes and said first,
40 second, third and fourth light emitting diodes,

means for operator input connected to said control electronics, for operator control of said control electronics, said means for operator input having an on/off button mounted on said front of said housing for turning
45 said control electronics on and off, a mode button mounted on said front of said housing for selecting one of said modes, and a jack mounted on said housing for connection to a calibration device for calibrating said diode array through said control electronics and downloading additional
50 said modes to said control electronics, and

means for operator output mounted on said front of said housing and connected to said control electronics, for advising an operator of the status of said control electronics and said diode array, said means for operator
55 output including a mode indicator, a battery indicator and a time remaining indicator,

whereby said diode array projects a resultant beam that is directed at selected tissue to impart energy into said tissue.

16. A method of laser therapy comprising the steps of:

providing a diode array having a center and four sets of laser diodes each having a first, second and third
5 laser diode, said sets being arranged in equally spaced, equilateral triangles with said first laser diodes of each said set being spaced a first distance from said center of

said diode array, and said second and third laser diodes being spaced a greater second distance from said center of
10 said diode array, said first, second and third laser diodes of each set each having laser beams and being oriented such that in each said set said laser beams are oriented at about 120 degrees relative to each other and overlapping,
pulsing said first, second and third laser diodes
15 according to a selected frequency sequence, and
projecting the resultant beam on selected tissue to impart energy into said tissue.

17. The method of laser therapy as set forth in Claim 16 wherein each said first laser diode has a wavelength of 650nm, each said second laser diode has a wavelength of 780nm, and each said third laser diode has a
5 wavelength of 808nm.

18. The method of laser therapy as set forth in Claim 16 wherein said frequency sequence includes pulsing said first, second and third laser diodes at 4.3 Hz for 17.16 sec then pulsing for 5.72 sec each for 28 increments
5 from 4.7 Hz to 130.2 Hz.

19. A method of laser therapy comprising the steps of:

providing a diode array having a center and four sets of laser diodes each having a first, second and third
5 laser diode, said sets being arranged in equally spaced, equilateral triangles with said first laser diodes of each said set being spaced a first distance from said center of said diode array, and said second and third laser diodes being spaced a greater second distance from said center of
10 said diode array, said first, second and third laser diodes

of each set each having laser beams and being oriented such that in each said set said laser beams are oriented at about 120 degrees relative to each other and overlapping, each said first laser diode having a wavelength of 650nm, each
15 said second laser diode having a wavelength of 780nm, and each said third laser diode having a wavelength of 808nm
pulsing said first, second and third laser diodes at 4.3 Hz for 17.16 sec then pulsing for 5.72 sec each for 28 increments from 4.7 Hz to 130.2 Hz, and
20 projecting the resultant beam on selected tissue to impart energy into said tissue.